

A Disaggregated Analysis of Government Expenditure on the Growth of Nigeria Economy (1990-2015)

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ABSTRACT

The study empirically examined the analysis of Government expenditure on the growth of Nigeria economy (1990-2015). Desk survey method was adopted in gathering relevant information on this study. Data were primarily sourced from secondary using Central Bank statistical Bulletin. Ordinary least square of multiple regression techniques was used in analyzing government expenditure impacts on the growth of Nigeria economy. Based on the analysis, capital expenditure had a positive impact on the growth and development of Nigeria economy. Also discovered that, recurrent expenditure was statistically significant to the growth and development of Nigeria economy. The study recommended that government should devise ways of maintaining an effective control to avoid wastage and misappropriation of funds for expenditure purposes. Government expenditure should be encouraged for the benefit of individuals and the entire society.

Keywords: Capital Expenditure, Recurrent Expenditure, Administration, Economic Services, Social Community Services, Transfer

1.0 Introduction

According to Arrow and Kurtz (2000), public expenditure is assumed to be the most powerful economic factor of all modern societies. The form and pattern of the output growth of any economy is determined by the structure and size of its public expenditure. The Nigerian public expenditure structure can be segmented into recurrent expenditure and capital expenditure. The components of the recurrent expenditure include expenditure on administration. (interest on loans and maintenance, salaries and wages) while capital expenditure captures government projects like the provision of electricity, education, telecommunication, airports, roads, and so on. The provision of public infrastructural facilities has been one of the fundamental basis for public spending. Providing and maintaining these infrastructural amenities cost a huge amount of financing. Hence, investment on infrastructures and productive activities spending is expected to positively contribute to the growth of the economy whereas spending on consumption by the government retards growth. It is argued that the country will benefit socially and economically from government investment (spending) on health, roads, education, agriculture, etc. The issue of impact of public expenditure on economic growth has aroused an intellectual debate amongst several scholars.

Governments have been found to be involved in two basic functions, that is, the protection functions (security) and the provision function. Government protection functions includes the establishment of the rule of law and property rights enforcement. Within this function, the security of lives and properties are ensured, crime rate is minimized, and the country is secured from external aggression. The provision functions centers on the provision of public goods and services to include power, roads, health and education. For instance, the expenditure of government on education and health engenders labour productivity and increases national output growth. Similarly, infrastructural expenditure on power, roads, communication, etc reduces the costs of production, facilitates the development of the private sector and industrial profitability, hence, fostering the growth of the economy (Nurudeen & Usman, 2010). The enormous impact of public expenditure on economic growth has continued to attract attention of economists recently. However, public expenditure allocation without due consideration to the rising needs of the economy is bound to bring about huge distortions in the economy which may retard growth. This study disaggregates a selected government expenditure components and attempts to determine their impact on the economic growth of Nigeria. The specific objectives are to examine the impact of capital expenditure on the growth of the Nigerian economy and ascertain the impact of recurrent expenditure on the growth of the Nigerian economy.

2.0 Theoretical framework and literature review

These are some theories that are postulated on public expenditure and its contributions on growth of economies.

2.1.1 Wagner's Law of Increasing State Activity

Adolph Wagner (1835-1917), a German economist made an in depth study relating to government expenditure in the late 19th century. He propounded a law called "The Law of Increasing State Activities". Wagner's law states that "as the economy develops over time, the activities and functions of the government increases". This law emphasizes that an industrial economic growth will be associated with increased public expenditure components in gross national product. It seeks to establish the functional relationship that exists between government

activities and the growth of the economy, so as to foster government involvement in the economy. Thus, government at all levels, irrespective of their size, showcased similar increasing tendency of public expenditure.

The Wagner's law in order words state that, as the economy's per capita income grows, the public expenditure grows also in relative size while the relative size of government will also grow along. As growth is being witnessed in the economy, the number of urban centers also increases with the corresponding social vices. Huge internal security is required in large urban settlements in order to maintain law and order. Hence, these government interventions have resulted to the public expenditure increases in the economy. Wagner's theory posits further that the growth of the economy is the fundamental factor that determines the growth of the public sector. According to Wagner's Law, there are pre-existing properties meant for activities at different government levels (both federal, state and local) to extensively and intensively increase. As such, the functional relationship that exists between the activities of the government and the growth of the economy are in such a manner that the growth of the government sectors will be more than that of the economic growth.

2.1.2 The Keynesian theory of public expenditure

Keynes viewed the expenditure of the government as an exogenous factor that has the ability of being generalized as policy investments which facilitates the growth of the economy. Keynes regarded the economy as being inherently unstable and requires active government intervention to achieve stability. He attached a low degree of importance to monetary policy and placed a high premium on fiscal policy (Powel, 1989; Parkin, 1982).. Keynes' economics focuses on the rate of spending in the economy. Aggregate spending influences output and thus, support employment and income. Keynesian economics emphasizes that, if we understand what determines the level of spending (aggregate demand), we will know what determines the level of output and income in the economy (Bowden, 1986). From his opinion, public expenditure would positively impact the growth of any economy. Hence, increased government expenditure may likely accelerate employment levels, investment profitability via aggregate demand multiplier effects. Therefore, government expenditure helps in engendering aggregate demand. This will in turn provoke output growth depending on expenditure and multiplier effect.

2.1.3 Empirical review

The seminar work of Baro (1991), brought about fresh investigation regarding the impact of government expenditure on the growth of the economy. Similarly, Barro and Sala-i-Martin (1992) suggested that, the directions of the growth of the economy is being influenced or determined by the activities of government. Amirkhalkhair (2002) also revealed that in predicting the future growth of the economy via the endogenous growth hypothesis, fiscal policy is very crucial. This has caused many scholars to embark on aggressive investigation regarding government expenditure effect on the growth of the economy. However, Ekpo (1995) carried out an outstanding study where he regressed government capital disaggregated expenditure components on private investment by employing the ordinary least square (OLS) technique of analysis from 1960-1990. His study found out that, private investment in Nigeria is influenced by capital expenditure on education, health, communication, transportation, and agriculture, which in turn facilitated the entire growth of the economy. On the other hand, private sector investment was crowded out via government capital expenditure on manufacturing and construction. The examination of the effect of capital, recurrent and sectorial spending from 1970-1993 was undertaken by Ogigio (1995). His study revealed that the growth of the economy and government expenditure had a long run relationship. Meanwhile, public contemporaneous recurrent spending significantly affected capital expenditure more whereas, a five year capital expenditure lag values are more growth inductive. It was further indicated by the study that, the investment programmes of the government regarding the provision of social-economic basic amenities engender an environment that is suitable for the private sector-led growth.

Aregbeyen (2006) examined both national income and government spending and established that, there is a unidirectional causality between them via the application of the standard causality and Johansen co-integration tests. Ranjan and Sharma (2008) studied government expenditure effect during the periods of 1950 to 2007 on economic growth. They revealed that government expenditure has a significant and positive impact on economic growth. It was also revealed by them that, co-integration existed among the variables under study. Several studies have somehow disentangled government expenditure and engaged the co-integration multivariate analysis to access the sectorial effect on the growth of the economy. The result suggested that, government spending on education in the long run had a significant positive effect on the growth of the economy while expenditure on health and defense impacted the growth of the economy negatively. Also, a study by Abdullah (2000) revealed that the relationship that existed between government spending and the growth of the economy showed that, the performance of the economy is relative to the size of government. He suggested increases in economic, social and infrastructure expenditure for the government. Additionally, the private sector should be supported and encouraged to help foster the expected economic growth via a comprehensive study on the relationship between public spending composition and the growth of the economy among certain developing economies. They revealed via their regression result that, there is a significant negative relationship between capital expenditure and the per capita real GDP growth.

Hence, they concluded that, real GDP per capita related positively to recurrent expenditure. A study of the short run analysis on recurrent and capital expenditure, alongside expenditure on health, defense, communication, agriculture, transportation and education by Abu and Abdullahi (2010) revealed that, government capital expenditure, government recurrent expenditure and the overall expenditure of the government influences the growth of the Nigerian economy negatively. Categorically, increases in public spending on health, communication and transportation in return increases economic growth. They further revealed that the increases in public spending were not proportional to the expected growth and development in Nigeria. In measuring the government expenditure effect on growth, they conducted a disaggregated analysis of government expenditure. The authors found the existence of feedback relationship to have existed between the expenditure of government and the growth of the economy.

Also, the study of Komain and Brahmasrene (2007) assessed the relationship that existed between government spending and the Thailand's economic growth using the Granger causality test. The analysis revealed the existence of a unidirectional relationship, a positive and significant impact on growth and the empirical growth relationship varied depending on the country, data and model of analysis. This was contrary to the opinion of Abu and Abdullah (2010) that, expenditure of government on health, communication and transportation would accelerate the growth of the economy if all sectors responsible for them are properly engaged. Similarly, a critical examination was carried out by Oyinlola (2013) to establish the relationship that existed between public expenditure and the growth of the Nigerian economy from 1970 to 2009. A disaggregated public expenditure level was employed using the Gregory-Hansen structural breaks co-integration and error correction techniques. The long run elasticity results showed that economic growth does not translate to growth in recurrent expenditure, administrative expenses and transfer expenditures. In contrast, economic growth leads to growth in capital expenditure as well as in Social and community service. The result of this study confirms the existence of Wagner's law in Nigeria. This indicates that changes in national income can cause changes in government expenditures as government size in Nigeria has increased both in absolute and relative terms. The result of the short run dynamics showed that an increase in debt obligations raises expenditure on capital and administration in the current period.

However, the capital expenditure would decline by about 0.76 per cent with a similar increase in debt obligation in the immediate past period. This result also showed that, the main objectives of government spending are economic growth and development, especially investment in infrastructure and human resources all of which falls under social and community services. Based on the result, the study recommended that there should be efforts to maintain adequate levels of investment in social and economic infrastructure. The co-integration result in the study confirmed the presence of long run equilibrium relationship between public spending and the growth of the economy. Consequently, improvement in public spending will engender increased economic growth. Olugbenga and Owoye (2007) conducted a study in over thirty countries and investigated how government expenditure relates with the growth of the economy from 1970-2005. Their results revealed that there existed a long run equilibrium relationship and all the variables studied possessed a unidirectional causality for about sixteen countries. In consonance with the Keynesian hypothesis, ten of the countries studied have their causality move from the growth of the economy to government expenditure, thereby, confirming the opinion of Wagner's law. Finally, feedback relation was found to have existed between government expenditure and the growth of the economy for four countries.

Ram (1986) investigated the relationship between public spending and economic growth from 1950-1980 for about 116 nations. He employed both time series and cross sectional analysis and revealed that the growth of the economy is being influenced by government expenditure. Abu-Bader and Abu-Qarn (2003) engaged the cointegration multivariate and the approach of variance decomposition to reveal the causal linkage between public expenditure and the growth of the economies of Syria, Egypt and Israel. A bi-directional relationship was observed and a negative long run relationship was established. Gregoriou and Ghosh (2007) studied the effect of public expenditure on the growth of the economy using the heterogeneous panel, they found out that, countries that experienced higher growth have large government expenditure. He further emphasized that the size of government is paramount to the overall economic performance. Niloy (2003) engaged an approach of the disaggregation in examining thirty developing countries on the impact of their respective public spending on economic growth from 1970 to 1980. His result showed significant and positive relationship between the ratio of capital government spending to GDP with the growth of the economy and the ratio of recurrent public spending to GDP was insignificant with the growth of the economy.

A new framework was proposed for New Zealand to investigate how its government expenditure relates with the growth of their economy by Erkin (1988). The findings from the empirical result proved that consumption is not hampered by higher government expenditure rather private investment increases engendered the growth of the economy. Also, Mitchell (2005) reasoned out that, the expenditure of the American government has been a substantial growth level over the years and has negatively impacted the economic growth. Cutting down on expenditure especially as it regards project with the lowest benefits or possessing the highest

costs. However, Peter (2003) investigated government expenditure effect on the growth of the economy from 1960-2001 and submitted that the country's excess expenditure of the government deterred the growth of the economy.

The study by Devarajan (1996) seeks to express the existing relationship between government consumption and the growth level of certain developing countries, a negative and significant linkage was observed by capital expenditure and per capita GDP real growth rate. Also, Oyinola (2013) investigated the linkage between the defence sector in Nigeria and the growth of the economy and submitted that there existed a positive effect among the variable. Fayingbesi and Odusola (1999) carried out an empirical examination on how government spending relates with the growth of the Nigerian economy. From this econometric analysis, it was found that there existed a positive and significant effect on real output by government spending and further proved that recurrent government spending has little impact on real output.

Akpan (2005) in his study engaged a disaggregated method of ascertaining the components of government spending that do or do not influence growth. These components included expenditure on transfers, economic services, capital, social and community services, administrative and recurrent expenditure. He concluded his study by suggesting that, there was no linkage between government spending components and the growth of the Nigerian economy

3.0 Methods and material

Based on the existing theoretical and empirical literature, analytical design was adopted to investigate a disaggregate analysis of government expenditure on the growth of Nigeria economy. In line with the main focus of this study, only the secondary data were used. Secondary data involve an examination of already existing data obtained from textbooks, journal, articles, libraries, internet search and bulletins. This study considered total capital expenditure, total recurrent expenditure, gross domestic product and government expenditure. The time series data for the period 1990-2015 on the amount of federal government expenditure on recurrent and capital expenditure were used. This study employed ordinary least square model(OLS) technique to establish the relationship between government expenditure and growth of the economy. In order to ascertain if government expenditure has impact on the growth of the Nigerian economy, it is proper to develop a justifiable model on the expected relationship that exist between the variables. In line with the Wagner's law and the Keynesian framework, this study specified two models as follows;

$$\text{Therefore, } \text{GDP} = f(\text{CA}, \text{CES}, \text{CSCS}, \text{CT}) \quad (1)$$

Where:

CA	=	Capital expenditure on administration
CES	=	Capital expenditure on economic service
CSCS	=	Capital expenditure on social and community services
CT	=	Capital expenditure on transfers

$$\text{GDP} = \alpha_0 + \alpha_1 \text{CA} + \alpha_2 \text{CES} + \alpha_3 \text{CSCS} + \alpha_4 \text{CT} + U_t$$

$$\text{GDP} = f(\text{RA}, \text{RES}, \text{RSCS}, \text{RT}) \quad (2)$$

Where:

RA	=	Recurrent expenditure on administration
RES	=	Recurrent expenditure on economic services
RSCS	=	Recurrent expenditure on social and community services
RT	=	Recurrent expenditure on transfers

$$\text{GDP} = \alpha_0 + \alpha_1 \text{RA} + \alpha_2 \text{RES} + \alpha_3 \text{RSCS} + \alpha_4 \text{RT} + U_t$$

4.0 Analysis of data

The regression results of government expenditure on the growth of Nigeria economy(1990-2015)

TABLE 1

Dependent variable: GDP

Variable	Coefficient	Std error	t-stat	Prob
C	3.481684	0.932634	3.73372*	0.0010
CA	0.972832	0.099143	9.81223*	0.0000
CES	10.00510	1.23959	8.07136*	0.0000
CSCS	0.420054	0.14090	2.98151*	0.0016
CT	3.687593	1.533983	2.403933	0.1247

Source: E-view.

R^2	=	0.875134
$R^2(\text{adj})$	=	0.85999
SER	=	0.619877
DW	=	2.613550
F-stat	=	6.782101

The coefficient of multiple determination (R^2) is 0.875134 and an adjusted R^2 of 0.85999. The later indicates that 86 percent of variations in the observed behaviour of GDP is jointly explained by the independent variables.. This shows that the model fits the data well and has a tight fit. Also, the f-statistics is used to test for the significance of such good or tight fit. The f-statistics value of 6.782 which when compared with the table value indicates that the high adjusted R^2 value is better than would have occurred by chance; therefore the model is statistically robust. Using this criterion, therefore, social and community services, economic services, administration and transfers variables were significant at one percent. Therefore one percent increase in explanatory variables will prop up the economy more than proportionate percentage point. The constant term indicates that if all the variables are held constant, the economy will be improved by 3.48. The DW statistics (2.61) is used to test for the serial correlation in the residuals of the model. The decision rule is that if the calculated DW falls outside du and 4-du, then there is a serial correlation in the residuals. This shows that calculated DW=2.61 falls outside and this indicates that the estimates should be taken with caution. The goodness of fit of the model as indicated by the adjusted R-squared shows a good fit of the model that the model fits the data well. To test for the individual statistical significance of the parameters, the t-statistics of the respective variables were considered, using their probability values. The a priori expectation about the signs of the parameter estimates conforms to the economic theories.

TABLE 2

Dependent variable: GDP

Variable	Coefficient	Std.error	t-stat	Prob.
C	2.080533	7.762449	0.268025	0.7917
RA	0.338536	0.046223	7.323976*	0.0000
RES	0.063832	0.104808	6.091358	0.1232
RSCS	0.466498	0.377838	1.234652	0.2289
RT	0.597596	0.182470	3.275032*	0.0045

Source: E-view

$R^2 = 0.967376$	$R^2(\text{adj}) = 0.961938$	SER = 0.288026	DW = 1.744505
F-stat = 116.8394			

The coefficient of multiple determination (R^2) is 0.967376 and an adjusted R^2 of 0.961938. The later indicates that 96 percent of variations in the observed behaviour of GDP is jointly explained by the independent variables. This shows that the model fits the data well and has a tight fit. Also, the f-statistics is used to test for the significance of such good or tight fit. The model reports an effectively high f-statistics value of 116.8394 which when compared with the table value. This indicates that the high adjusted R^2 value is better than would have occurred by chance; therefore the model is statistically robust. Using this criterion, therefore, RA and RT are significant at one percent, specifically a one percent increase in the explanatory variables will prop up the economy more than proportionate percentage point. The constant term indicates that if all the variables are held constant, the economy will be improved by 2.080. The DW statistic (1.744) is used to test for the serial correlation in the residuals of the model. The decision rule is that if the calculated DW falls outside du and 4-du, then there is a serial correlation in the residuals. This shows that our calculated DW=1.744 falls outside and this indicates that the estimates should be taken with caution. The goodness of fit of the model as indicated by the adjusted R-squared shows a good fit of the model that the model fits the data well. To test for the individual statistical significance of the parameters, the t-statistics of the respective variables were considered using their probability values, shows the constant term is positive while independent variables are statistically significant at one percent. The a prior expectations about the signs of the parameter estimates are confirmation of the economic theories.

4.1 Findings

The study empirically examined a disaggregated analysis of government expenditure on the growth of the Nigeria economy (1990-2015). From the results stated above, government expenditure had a positive impact on the growth and development of Nigeria economy. This means that the effectiveness of the economy is dependent on the contributions of public expenditure. All the incorporated variables in equation one revealed that social and community services, economic services, transfers and administration had a positive impact on the performance of Nigeria economy and were determinants of economic growth using GDP as a proxy. The finding conforms to the works of Arrow and Kurtz(2000) who posit that public expenditure plays an important role in physical and human capital formation over time. Also public expenditure is in line with future economic growth and well being. The result shown in the second equation revealed that recurrent expenditure had a positive impact on the growth of Nigeria economy. Also, recurrent expenditure was statistically significant to the growth and development of Nigeria economy. Given the empirical results of the model, the study revealed that capital and recurrent expenditure contributed positively to the growth of Nigeria economy. Moreso, these results are in conformity with economic theory that states that a rise in the various expenditure components leads to a rise in the GDP variable. In the same vein, this study is in conformity with Wagner's law which states that the growth of an economy is propelled by an increase in the share of public expenditure. The finding is theoretically based on how public expenditure tends to increase the growth of the Nigerian economy.

5.0 Conclusion/Recommendations

5.1 Conclusion

The study has established that public expenditure in the Nigeria economy increases the level of output. It shows the expenditure of the public authority is aimed at protecting the citizen and promoting their economic and social welfare. Public expenditure raises national income and economic stabilization. The results showed that both capital and recurrent expenditure have positive and significant impact on economic growth. The estimated results revealed that public expenditure is incurred by the government for maintaining itself and the economy as a whole.

5.2 Recommendations

The following recommendations are proffered:

- i. The government should implement other measures that will help in contributing to the growth of Nigeria economy
- 2 Public expenditure is an important fiscal instrument, therefore government can use it to control the economy.
- 3 Government should devise ways of maintaining an effective control to avoid wastage and misappropriation of funds for expenditure purposes.
- 4 Public expenditure should be encouraged for the benefit of individuals and the entire society.
- 5 Government should conduct a proper evaluation and assessment in order to spend on critical sectors that will catalyze economic activities to impact positively on the economy.

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